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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,502	09/22/2000	Masahito Kobayashi	197399US2	9729

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EXAMINER

PATEL, PARESH H

ART UNIT PAPER NUMBER

2829

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/667,502

Applicant(s)

KOBAYASHI ET AL. 

Examiner

Paresh Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 4,9-14 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 4, 9-14 and 19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 16.

Response to Arguments

Applicant's arguments filed 07/15/2003 have been fully considered but they are not persuasive. Applicant's arguments with respect to claims 1-3, 5-8 and 15-18 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Fumitaka discloses a sensor (19 of 18) which measures the impact load of semiconductor chip 14 on a needle 17, in order to improve the product manufacturing yield. Nakajima discloses (at lines 1-29 of column 9) detection of overdrive of wafer or chuck using different control circuits of control system 70 to improve the product yield during testing. Here,

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sensor and detection section of the Fumitaka can be used with sensor body 56 and detection section of Nakajima to measure load applied to the object of the inspection i.e. wafer or chuck by tips of the probes or needles.

Also, "a load applied to the object of the inspection," "a load applied to the main chuck," "the movement of the main chuck" and "a controller" as recited in the claims 1, 5, 6, 15 and 16 are disclosed by Nakajima at lines 1-29 of column 9.

Regarding claim 16, applicant argues that a controller and a pressure sensor as claimed are clearly not disclosed in either of the cited references. Examiner disagrees for the same reason as mention earlier because Nakajima at lines 1-29 of column 9 discloses a controller and Fumitaka in the abstract discloses pressure sensor as claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 5-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Takekoshi (US 6501289).

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Regarding Claims 1 and 5-6, Takekoshi in fig. 1-2 discloses a probe method comprising steps of:

- moving a main chuck [21] to align an object of inspection [W] on the main chuck with probes [lines 16-36 of column 4] of a probe card [lines 16-36 of column 4] located over the main chuck;

- moving the main chuck toward the probe card [lines 16-36 of column 4], thereby bringing electrodes of the object of inspection into contact with the probes [lines 16-36 of column 4];

- overdriving the main chuck [lines 57-63 of column 6] toward the probe card and controlling [using a control device] the movement of the main chuck in accordance with the measured load; and

- inspecting electrical properties of the object of inspection using the probes [lines 49-56 of column 6].

measuring a load [lines 57-63 of column 6] applied to (main chuck for claims 1 and 5) the object of inspection when contacted by the probes **by means of a sensor** [26, 27] and said sensor is located on at least one of the lower parts of the main chuck [see fig. 3A-B and 4] and between an LM guide and X-Stage on which the main chuck is set.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-8 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al (US 5642056) in view of Fumitaka (JP 07-066269).

Regarding Claims 1 and 5-6, Nakajima et al, in Figure1, discloses a probe method comprising steps of:

- moving a main chuck (15) to align an object of inspection (14) on the main chuck with probes (23) of a probe card (22) located over the main chuck;
- moving the main chuck (15) toward the probe card (22), thereby bringing electrodes of the object of inspection into contact with the probes (column 6, lines 17-19);
- overdriving (70) the main chuck (15) toward the probe card (22) and controlling (70) the movement of the main chuck in accordance with the measured load; and
- inspecting electrical properties of the object of inspection by means of the probes (23)

Nakajima et al. does not disclose **measuring a load** applied to the object of inspection when contacted by the probes **by means of a sensor** and said sensor is located on at least one of the lower parts of the main chuck and between an LM guide and X-Stage on which the main chuck is set. Rather, Nakajima measures voltages using sensor body 56 or sensor 55 when tips of the probe contacts the sensor body.

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Fumitaka discloses, (in Figure 1) an apparatus wherein the load applied to the object of inspection (14) by means of a **sensor** (19 of 18) and said sensor is located on at least one of the lower parts of the main chuck [see 19 in fig. 1].

Therefore it would have been obvious to one of ordinary skill in the art to modify Nakajima et al. in view of Fumitaka to incorporate a means (a pressure sensor) to measure the load applied to the object of inspection so as to control the lift system in accordance with measured load (see Abstract).

Regarding Claims 2 and 7, Fumitaka, in Figure 1, discloses a probing method wherein said control of the movement of the main chuck (13 and 15) is control of an overdrive based on the measured load, such that the load has a given value (see abstract).

Regarding Claims 3 and 8, Nakajima et al, in Figure 1, discloses a probing method wherein said control (70) of the movement of the main chuck (15) includes steps of obtaining (column 7, lines 14-20) a distortion of the main chuck in accordance with the measured load and correcting at least one of the dislocations between the object of inspection and the probes in X-, Y-, and θ -directions (column 8, lines 17-22) in accordance with the distortion.

Regarding Claims 15 and 16, Nakajima et al, in Figure 1, discloses a probe apparatus comprising:

- a main chuck (15) carrying an object of inspection (14) thereon
- a probe card (22) having a plurality of probes (23) located over the main chuck (15);

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- a drive mechanism for moving the main chuck (15) in X-, Y-, Z-, and θ -directions (See column 8, lines 17-22); and
- a controller (70) for controlling the movement of the main chuck (15) and obtaining a distortion of the main chuck in accordance with a position where the probes (23) touch the object of inspection [main chuck for claim 15] (14) and the load measured using the pressure sensor.

However, Nakajima et al. does not disclose a pressure sensor (55) adapted to measure a load applied to the object of inspection (14) by the probes (23) when the drive mechanism moves the main chuck toward the probe card (22) so that the object of inspection (14) on the main chuck (15) is brought into contact with the probes (23). Fumitaka discloses, in Figure 1, an apparatus wherein a pressure sensor (19 of 18) adapted to measure a load applied to the object of inspection (14) by the probe (20) when the drive mechanism (11, 12) moves the main chuck (76) toward the probe (16) so that the object of inspection (79) on the main chuck (12 and 15) is brought into contact with the probe (20).

Therefore it would have been obvious to one of ordinary skill in the art to modify Nakajima et al. in view of Fumitaka to incorporate a means to measure the load applied to the object of inspection so as to control the lift system in accordance with measured load (also see Abstract).

Regarding Claim 17, Fumitaka, in Figure 1, discloses a probing apparatus wherein said controller (28, 22, 24) controls an overdrive in accordance with the measured load so that the load has a given value (see abstract).

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Regarding Claim 18, Nakajima et al, in Figure 1, discloses a probing apparatus wherein said controller (70) corrects at least one of the dislocations between the object of inspection (14) and the probes (23) in X-, Y-, and θ -directions (column 8, lines 17-22) in accordance with the distortion.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekoshi in view of Fumitaka.

Regarding Claims 15 and 16, Takekoshi discloses a probe apparatus [fig. 1] comprising:

- a main chuck [21] carrying an object of inspection (14) thereon
- a probe card [probe card of lines 49-64 of column 6] having a plurality of probes [probes of probe card] located over the main chuck [lines 49-55 of column 6]
- a drive mechanism for moving the main chuck [22, 24-25] in X-, Y-, Z-, and θ -direction;

and

- a controller [23, control device, 31, 32] for controlling the movement of the main chuck [21] and obtaining a distortion of the main chuck in accordance with a position where the probes touch the object of inspection (main chuck for claim 15) [lines 49-64 of column 6].

Takekoshi does not disclose a **pressure sensor** adapted to measure a load applied to the object of inspection (main chuck for claim 15) by the probes when the drive mechanism moves the main chuck toward the probe card so that the object of inspection on the main chuck is brought into contact with the probes. Fumitaka

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discloses in Figure 1 an apparatus wherein a **pressure sensor (19 of 18)** adapted to measure a load applied to the object of inspection by the probe when the drive mechanism moves the main chuck toward the probe so that the object of inspection on the main chuck is brought into contact with the probe.

Therefore it would have been obvious to one of ordinary skill in the art to modify Takekoshi to include pressure sensor as taught by Fumitaka to incorporate a means to measure the load applied to the object of inspection so as to control the lift system in accordance with measured load (also see Abstract of Fumitaka).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 703-306-5859. The examiner can normally be reached on M-F (8:30 to 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 703-308-1233. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Paresh Patel
Sep. 25, 2003



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